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CTF-066975

Exemption 7

COMPONENT RELIABILITY ASSESSMENT

SYSTEM: W31-3

SUBSYSTEM: MC3777 Firing Set

MAJOR ASSEMBLY: MC3775 Power Pack

COMPONENT: Transverter

FAILURE EVENT: J6a -- Failure of the transverter (dc/dc converter) to provide a proper high voltage output to charge the capacitor bank.

Exemption 7

ASSESSMENT VALUE:

ASSESSMENT DATE: April 1988

Exemption 6

Exemption 6

RELIABILITY ENGINEER: 7222

ASSESSMENT RATIONALE:

The MC3775 power pack, which is part of the MC3777 firing set, includes a single transverter that converts the nominal ^{Exemption 7} to ^{Exemption 7}. A key feature of this transverter design is the use of a ringing choke (also called a flyback transformer) to step-up the voltage. Transverters using this basic design have been used in weapon systems for more than ten years and have a history of high reliability. Also, compared to the push-pull transverters that it superseded, the flyback type has higher efficiency, reduced size, and reduced input current requirements. The specific transverter that is the subject of this assessment is not as complex as some in that it has a simple input voltage regulator. This compares with more sophisticated regulators in other applications that sample the output voltage and use it as a regulator reference voltage.

Exemption 7

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Extensive transverter, firing set, and systems testing during development of this and other similar transverters has shown the design to be conservative, with a capability of operating for longer than required times in environments more severe than those in which the transverter is required to operate in this or the other systems.

Exemption 7

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The data and the 0.0005 assessment are also plotted on the attached D-ACC.

OFFICIAL USE ONLY

May be exempt from public release under the Freedom of Information Act (5 U.S.C. 552), exemption number and category 6, Personal Privacy; 7(F), Law Enforcement Department of Energy review required before public release. Name/Org.: Eric Holzer / DOE SNL Date: April 18, 2018 Guidance (if applicable)

066975

-2-

April 1988

Test Data Summary

<u>Test Name</u>	<u>Number</u>
	<u>Failed</u> <u>Tested</u>
MC3777 Firing Set E- and D-Tests	Exemption 7
Firing Set E/D-Tests, Similiar Transverters	
W31-3 System Laboratory Tests	
W31-3 System Flight Tests	
Other Systems Tests, Similar Transverters	-
Total Assessment Data	

HEW:7222:pmd

-3-

April 1988

DATA-ASSESSMENT COMPARISON CHART

Event J_{6a}

KEY
• Data not in SUM
! Upper 90 Pct Conf Limit
Sing. Data Sources
○ Point Estimate
□ 50 Pct Conf Limit
Combined Data Sources
● Point Estimate
■ 50 Pct Conf Limit

Exemption 7